



State of New Jersey

DEPARTMENT OF ENVIRONMENTAL PROTECTION
Bureau of Nonpoint Pollution Control
Division of Water Quality
Mail Code 401-02B
Post Office Box 420
Trenton, New Jersey 08625-0420
609-633-7021 Fax: 609-777-0432
http://www.state.nj.us/dep/dwq/bnpc_home.htm

CHRIS CHRISTIE
Governor

KIM GUADAGNO
Lt. Governor

BOB MARTIN
Commissioner

June 30, 2017

Jay Holtz, P.E.
Director of Engineering
Oldcastle Precast, Inc.
5331 SW Macadam Ave., #376
Portland, OR 97239

Re: MTD Laboratory Certification
PerkFilter™ Media Filtration System by Oldcastle Precast, Inc.
On-line Installation

TSS Removal Rate 80%

Dear Mr. Holtz:

The Stormwater Management rules under N.J.A.C. 7:8-5.5(b) and 5.7(c) allow the use of manufactured treatment devices (MTDs) for compliance with the design and performance standards at N.J.A.C. 7:8-5 if the pollutant removal rates have been verified by the New Jersey Corporation for Advanced Technology (NJCAT) and have been certified by the New Jersey Department of Environmental Protection (NJDEP). Oldcastle Precast has requested a Laboratory Certification for the PerkFilter™ Media Filtration System.

This project falls under the "Procedure for Obtaining Verification of a Stormwater Manufactured Treatment Device from New Jersey Corporation for Advanced Technology" dated January 25, 2013. The applicable protocol is the "New Jersey Department of Environmental Protection Laboratory Protocol to Assess Total Suspended Solids Removal by a Filtration Manufactured Treatment Device" dated January 25, 2013.

NJCAT verification documents submitted to the NJDEP indicate that the requirements of the aforementioned protocol have been met or exceeded. The NJCAT letter also included a recommended certification TSS removal rate and the required maintenance plan. The NJCAT Verification Report with the Verification Appendix for this device is published online at <http://www.njcat.org/verification-process/technology-verification-database.html>

The NJDEP certifies the use of the PerkFilter™ Media Filtration System by Oldcastle Precast, Inc. at a TSS removal rate of 80%, when designed, operated and maintained in accordance with the information provided in the Verification Appendix and subject to the following conditions:

1. The maximum treatment flow rate (MTFR) for the manufactured treatment device (MTD) is calculated using the New Jersey Water Quality Design Storm (1.25 inches in 2 hrs) in N.J.A.C. 7:8-5.5. The MTFR is calculated based on a verified loading rate of 2.54 gpm/ft² of effective filtration treatment area.
2. The PerkFilter™ Media Filtration System shall be installed using the same configuration as the unit verified by NJCAT, and sized in accordance with the criteria specified in item 6 below.
3. This device cannot be used in series with another MTD or a media filter (such as a sand filter), to achieve an enhanced removal rate for total suspended solids (TSS) removal under N.J.A.C. 7:8-5.5.
4. Additional design criteria for MTDs can be found in Chapter 9.6 of the New Jersey Stormwater Best Management Practices (NJ Stormwater BMP) Manual, which can be found on-line at www.njstormwater.org.
5. The maintenance plan for a site using this device shall incorporate, at a minimum, the maintenance requirements for the PerkFilter™ Media Filtration System, which is attached to this document. However, it is recommended to review the maintenance website at http://www.kristar.com/images/downloads/manuals/PerkFilter_Maintenance_Guide_11_4_15.pdf for any changes to the maintenance requirements.
6. Sizing Requirements:

The example below demonstrates the sizing procedure for a PerkFilter™ Media Filtration System.

Example: A 0.25-acre impervious site is to be treated to 80% TSS removal using a PerkFilter™ Media Filtration System. The impervious site runoff (Q) based on the New Jersey Water Quality Design Storm was determined to be 0.79 cfs or 354.58 gpm.

The calculation of the minimum number of cartridges for use in the PerkFilter™ Media Filtration System is based upon both the MTFR and the maximum inflow drainage area. It is necessary to calculate the required number of cartridges using both methods and to rely on the method that results in the highest number of cartridges determined by the two methods.

Inflow Drainage Area Evaluation:

The drainage area to the PerkFilter™ Media Filtration System in this example is 0.25 acres. Based upon the information in Table 1 below, the following minimum numbers of cartridges are required in a PerkFilter™ Media Filtration System to treat the impervious area without exceeding the maximum without exceeding the maximum drainage area:

1. Nine (9) 12” cartridges;
2. Six (6) 18” cartridges;
3. Five (5) 24” cartridges; or
4. Four (4) 30” cartridges.

Maximum Treatment Flow Rate (MTFR) Evaluation:

The site runoff (Q) was determined based on the following:

time of concentration = 10 minutes

i=3.2 in/hr (page 5-8, Fig. 5-3 of the NJ Stormwater BMP Manual)

c=0.99 (runoff coefficient for impervious)

$Q=ciA=0.99 \times 3.2 \times 0.25 = 0.79$ cfs, or $0.79 \times 448.83 = 354.58$ gpm

Based on a flow rate of 354.58 gpm, the following minimum numbers of cartridges are required in a PerkFilter™ Media Filtration System without exceeding the MTFR:

1. Thirty (30) 12” cartridges;
2. Twenty (20) 18” cartridges;
3. Fifteen (15) 24” cartridges; or
4. Twelve (12) 30” cartridges.

The MTFR Evaluation results will be used since that method results in the higher minimum configuration determined by the two methods.

The sizing table corresponding to the available system models is noted below:

Table 1 PerkFilter™ Cartridge Heights and NJ Cartridge Treatment Capabilities

| PerkFilter Cartridge Height (inches) | Filtration Treatment Area (sq. ft) | Maximum Treatment Flow Rate, MTFR (gpm) ¹ | Mass Capture Capacity (lb) ² | Maximum Allowable Drainage Area (acres) ³ |
|--------------------------------------|------------------------------------|--|---|--|
| 12 | 4.7 | 12 | 17.2 | 0.029 |
| 18 | 7.1 | 18 | 25.7 | 0.043 |
| 24 | 9.4 | 24 | 34.3 | 0.057 |
| 30 | 11.8 | 30 | 42.9 | 0.072 |

¹ Based on surface loading rate of 2.54 gpm/ft²

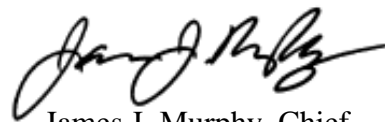
² Based on sediment mass loading capacity of 3.64 lb/ft² filtration treatment area

³ Based on calculation of 600 lbs of sediment per acre annually

Be advised a detailed maintenance plan is mandatory for any project with a Stormwater BMP subject to the Stormwater Management Rules, N.J.A.C. 7:8. The plan must include all of the items identified in Stormwater Management Rules, N.J.A.C. 7:8-5.8. Such items include, but are not limited to, the list of indication of problems in the system, and training of maintenance personnel. Additional information can be found in Chapter 8: Maintenance and Retrofit of Stormwater Management Measures.

If you have any questions regarding the above information, please contact Shashi Nayak of my office at (609) 633-7021.

Sincerely,



James J. Murphy, Chief
Bureau of Nonpoint Pollution Control

cc: Chron File
Richard Magee, NJCAT
Vince Mazzei, NJDEP - DLUR
Ravi Patraju, NJDEP - BES
Gabriel Mahon, NJDEP - BNPC
Shashi Nayak, NJDEP - BNPC